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A Recreation Manager's Guide to Understanding River Use and Users



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A Recreation Manager's Guide to Understanding River Use and Users

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Describes standardized procedures for assessing the characteristics and management preferences of river recreationists. Illustrates how data generated by these procedures can be useful in river recreation management and planning.

KEY WORDS: Survey research, recreation use patterns, user preferences, recreation planning, trend analyses.

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Figure 1—Managers require information on visitor characteristics and preferences in order to develop effective management plans. F-532812

The recreational floating use of our Nation's rivers has increased dramatically during the past decade, and the upward trend is likely to continue. While this has created new and exciting opportunities to serve the recreating public, it has also created difficult social and environmental problems. Federal, State, and local managers responsible for administering river recreation programs have been increasingly challenged by conflicts among user groups, vandalism, crowding, and environmental impacts.

Dealing with these issues requires better information about river floaters' backgrounds, behavior, viewpoints, and values (fig. 1). The North Central Forest Experiment Station of the Forest Service, in collaboration with all Federal land management agencies and several universities, has developed a set of standardized forms for inventorying floating use and floater preferences. The purpose of this report is to introduce these forms, to illustrate the kinds of data they generate, and to show how these data can aid managers in formulating river management objectives and policy.

The impetus for a broad river recreation survey using standardized data collection methods came from both resource managers and researchers in the 1970's. Managers needed information on user characteristics and preferences in order to develop effective management plans and evaluate newly implemented policies. Without such information, critical decisions relating to use restrictions, facility developments, interpretive activities, access improvements, and other changes in the recreation setting had to be based on intuition and "best guess."

At the same time, researchers saw the need to counter a trend toward isolated, noncomparable case studies in river management. During the late 1970's, the growth in the number of river recreation studies had roughly paralleled the growth of river recreation use and management problems. Anderson and others (1978) listed nearly 100 studies relating to river use and river users, most of which were of short duration (usually one season) and were conducted on different rivers. Each study typically employed different survey methods, making comparisons virtually impossible. Legislation in the mid-1970's also required that information on the character of resource use be collected and incorporated into the decisionmaking process. The Forest and Rangeland Renewable Resources Planning Act (1974) and the National Forest Management Act (1976) required the Forest Service, U.S. Department of Agriculture, to classify and inventory recreational use of forest lands, as well as predict changes over time. In 1979, these directives were expanded to ensure that management programs are not only based on character of use information, but that the effectiveness of the programs is evaluated as well. A parallel charge was issued to the U.S. Bureau of Land Management through the Federal Land Policy and Management Act (1976).

All of these factors gave rise to the formation of the National River Recreation Study, which developed over a 4-year period beginning in 1975. The study was designed to describe characteristics and preferences of recreationists visiting a variety of rivers throughout the country. It was also intended to define the Nation's spectrum of river recreation opportunities and to identify a set of rivers representative of that spectrum that could be monitored periodically to assess changes in the character of national river recreation use.



Figure 2—Floaters are contacted briefly at river accesses. A representative sample receives a mail-back questionnaire a few weeks later. F-532813.

The inventory forms were developed, pilot-tested, and refined during the initial 4 years of the Experiment Station's National River Recreation Study (Lime and others 1981). The primary data collection instrument—a mail questionnaire (appendix A)—is desirable because it minimizes interruption of the visitor's onsite experience. At the river, then, only brief contact is necessary to obtain names and addresses as well as some basic information on travel times, distances, and styles (fig. 2). During this contact, two secondary forms are completed: the River Recreation Registry and the Group Log (appendix B). The registry is completed by the floater; the Group Log is completed by the interviewer.

The procedure for administering these data collection forms is dictated by the peculiarities of each river and its use. The first step is to define the boundaries for study. In some cases, an entire river can be studied because the character of use is relatively homogeneous throughout the area of management concern. In most cases, however, rivers must be partitioned into two or more study segments because the character of use changes from section to section. The goal is to maximize the homogeneity of conditions within each study segment. Consideration should be given to the physical resource, the social setting (e.g., use levels, distribution of watercraft types), and management objectives.

The next step is to establish an onsite sampling strategy for each study segment. A sufficient number of sample days should be chosen to ensure representation of the user population to be described and, where

possible, to secure onsite contacts with approximately 1,500 recreationists. As a general rule, sample days should be allocated equally across all access points and, at each access point, randomly throughout the use season. Sampling times should be distributed so that the overall sample reflects use during all daylight hours.

Each recreationist contacted (over 15 years of age) is requested to complete the River Recreation Registry, which takes about 1 minute. At the same time, the interviewer completes one Group Log per user group. Respondents are informed that they might receive a followup questionnaire in the mail within a few weeks.

The third step is to administer the mail questionnaire. It is sent to a representative subsample of the onsite contacts. To ensure the potential for comparing responses among different user groups (e.g., canoeists versus motorboaters, weekend versus weekday, outfitted versus nonoutfitted use), at least 200 usable returns per study segment are required. Based on an estimated usable return rate of at least 60 percent, the questionnaire should be mailed to 350 people per segment.

Questionnaires are sent within 8 weeks of the onsite contact. An accompanying cover letter states the purpose of the study and encourages participation. Two followup mailings are sent to nonrespondents at 3-week intervals. The first followup offers an additional copy of the questionnaire and a second letter of encouragement; the second followup only a letter.

Information from returned questionnaires is merged with that from the onsite River Recreation Registry and Group Log to form one data set for analysis. To protect the respondent's anonymity and confidentiality, names and addresses are destroyed following the second followup mailing. Zip code information, however, is retained for analysis of where users live and how far they travel to visit the river.

Between 1978 and 1981 these inventory tools were put to work by managers on 45 river segments nationwide to gain knowledge of the characteristics and preferences of their clientele. We have drawn upon data from these studies to illustrate the kinds of information being generated and how it can be useful in decisionmaking. Our discussion is organized around 12 basic questions that river managers concerned about the needs of recreational floaters frequently ask. Details of each study drawn upon are on file at the North Central Forest Experiment Station.

How Much Use and Where?

The first thing a river manager needs to know about the resource is: How is it being used? Such information is critical in deciding where to locate field personnel, interpretive programs, facilities, and other support services (fig. 3). In addition, accurate data on intensity of use gives more credibility to our requests for funding of management programs.

From Group Log data, managers can quickly calculate how many people are floating the river. They can also tell where users are entering and leaving the river and at what time. The geographic distribution of use can be clearly and easily defined, as it was for Montana's Upper Missouri River based on 1979 Group Log records of put-in and take-out points (fig. 4). This figure shows points of entry and exit, which river segment was receiving the most use (Coal Banks-Judith), which was receiving the least use (Loma-Coal Banks), and how many groups were floating the entire sample stretch (22 percent).

Of course, to appreciate use intensity fully, we need to know not only how many people are using the resource, but also how long they stay. Time spent on the river becomes an important variable in assessing campground needs, crowding potential, and other issues affected by length of stay. Such information is available from Group Log data and can be displayed readily for any river segment in question. The Upper Missouri data on the distribution of trip times reported by floaters on the three most popular trips (table 1) can be used to illustrate this point. In each case, the data show a surprising amount of variability among floaters in time spent on the river. The most heavily used segment—the 43-mile stretch from Coal Banks to Judith Landing—is popularly regarded as a 3-day run. Yet, nearly one-fourth of the floaters stretched their visits to spend more time there. Thus, campgrounds and other support facilities designed to meet the requirements of a 2-night trip probably would prove inadequate.



Figure 3—*Information on use patterns and intensities aids in developing facilities and improvements, interpretive programs, and field personnel schedules.*
F-532814

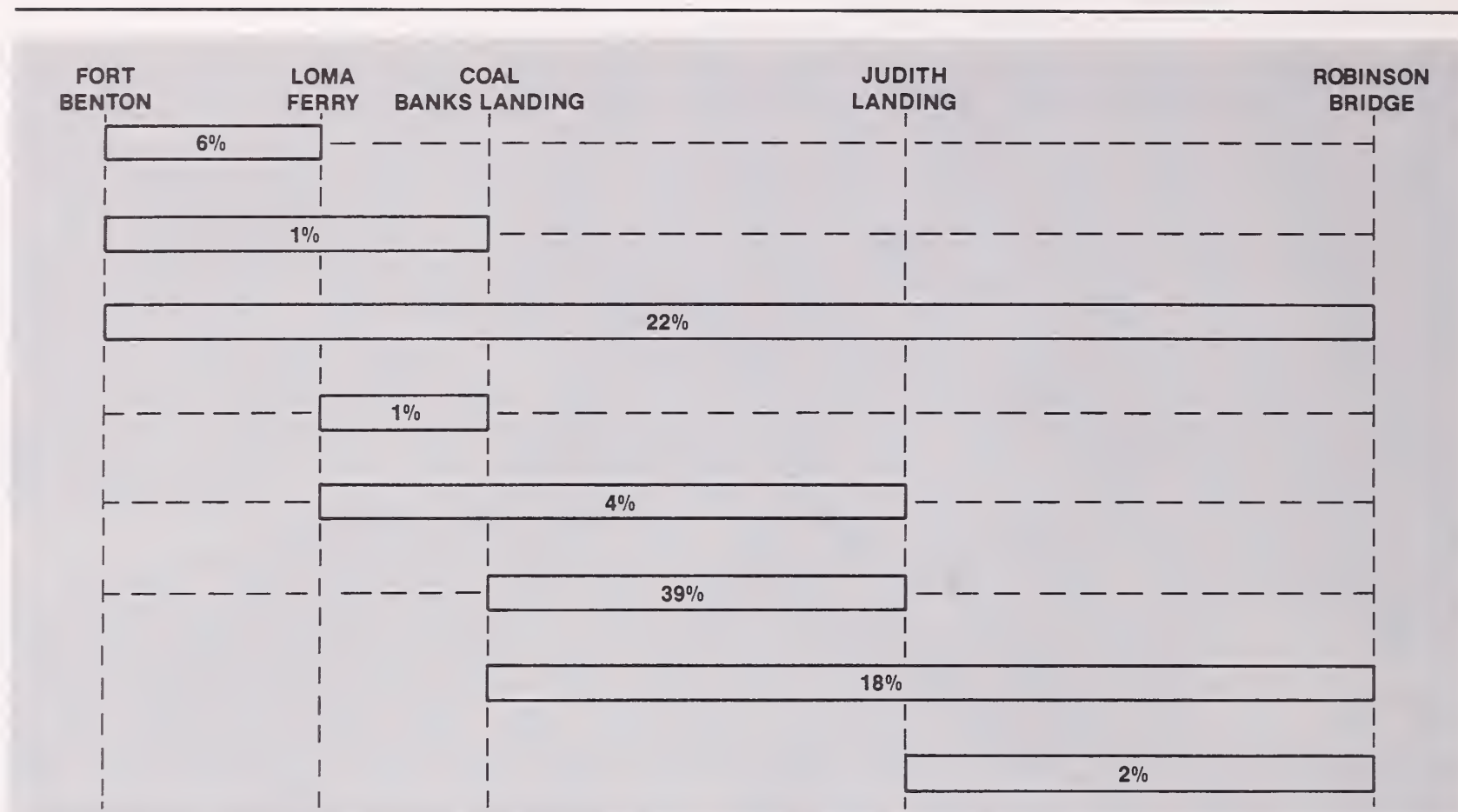


Figure 4—Distribution of use on eight river segments on the Upper Missouri National Wild and Scenic River in Montana, 1979.

Table 1—Length of stay for groups floating the most popular stretches of the Upper Missouri Wild and Scenic River in Montana, 1979¹

Trip	Number of days									
	1	2	3	4	5	6	7	8	9	10
Percent										
Coal Banks to Judith Landing	1	21	56	19	3	— ²	—	—	—	—
Coal Banks to Robinson Bridge	—	—	5	26	29	32	8	—	—	—
Ft. Benton to Robinson Bridge	—	—	6	9	8	19	32	15	0	11

¹ Data from Group Log, appendix B.

² — = not applicable.

Managers can also draw on the data base provided by the onsite contacts and mail questionnaires to explore other differences among various user groups. Revealing differences can often be found between such groupings as first-time versus repeat visitors, nonoutfitted versus outfitted groups, rafters versus kayakers versus motor-

boaters, high-solitude-oriented visitors versus low-solitude-oriented visitors, day users versus campers, and local versus nonlocal users. The allocation issues a manager confronts will determine which of these comparisons would be most useful.

What Kind of Use?

Having gained an appreciation for the magnitude and distribution of use, the next logical step is to describe the *kind* of use that is occurring. From Group Log data, the floating population can be described in terms of kinds of watercraft used, proportion of outfitted use, party sizes, and group compositions (e.g., family versus organization).

Rivers can differ markedly in use character, even rivers that are near each other. For example, 1979 data from the neighboring Withlacoochee and Suwannee Rivers in northern Florida showed substantial differences in use patterns (fig. 5). On the Suwannee, the predominant watercraft were nonmotorized canoes (56 percent) and motorized runabouts (25 percent). A quarter of the visits were provided by outfitters, who dealt exclusively in nonmotorized canoes. On the Withlacoochee, in contrast, virtually all visitors used nonmotorized

canoes; and more than 60 percent of the use was provided by outfitters.

Information on group composition and size is also useful in decisionmaking. For example, in 1979, fully one-third of the visitors to Connecticut's Housatonic River floated the river with fellow members of a club or organization (fig. 6). In contrast, data from Arizona's Salt River (1979) show that only 5 percent of the visitors belonged to such a group. Managers on the Housatonic, unlike their counterparts on the Salt, should be strongly sensitive to the needs of organized groups.

Question 1 on the mail questionnaire allows managers to identify precisely what organizations are using the river. Figure 7 shows a general classification of organization types for the Housatonic River. Canoe clubs accounted for a surprising 6 percent of the use. Youth groups (such as outdoor camps, scouts, church, school) accounted for an additional 15 percent of use. Thus, canoe clubs and youth groups alone accounted for well over 20 percent of the Housatonic's use. Information like this can help managers design information, safety, and education programs that are geared to the river's clientele. It can also indicate where these programs should be administered (assuming managers are interested in educating the visitor offsite, before the river trip is taken).

Finally, group size information has implications for management strategy. As shown below, 91 percent of the Housatonic's use by organized clubs or organizations consisted of groups larger than 10 members. In contrast, only 7 percent of the use by families and friends consisted of groups that large:

Persons per group	Clubs or organizations (N=40)	Family or friends (N=166)
<i>Percent</i>		
2-4	0	71
5-7	0	18
8-10	9	4
Over 10	91	7
Total	100	100

If excessive group size becomes an issue on the Housatonic, these data indicate that a policy to limit group size would disproportionately affect visitors floating with clubs or organizations. Managers would have to decide if this would be an acceptable side effect of their prescription for solving what is really a problem of congestion.

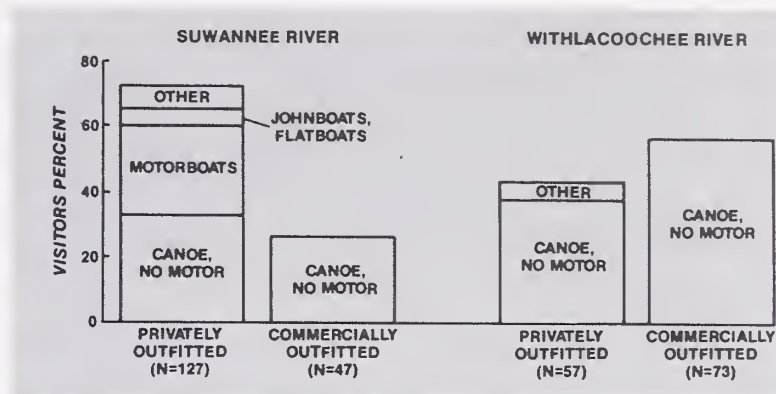


Figure 5—Watercraft used on the Suwannee and Withlacoochee Rivers in Florida, 1979.

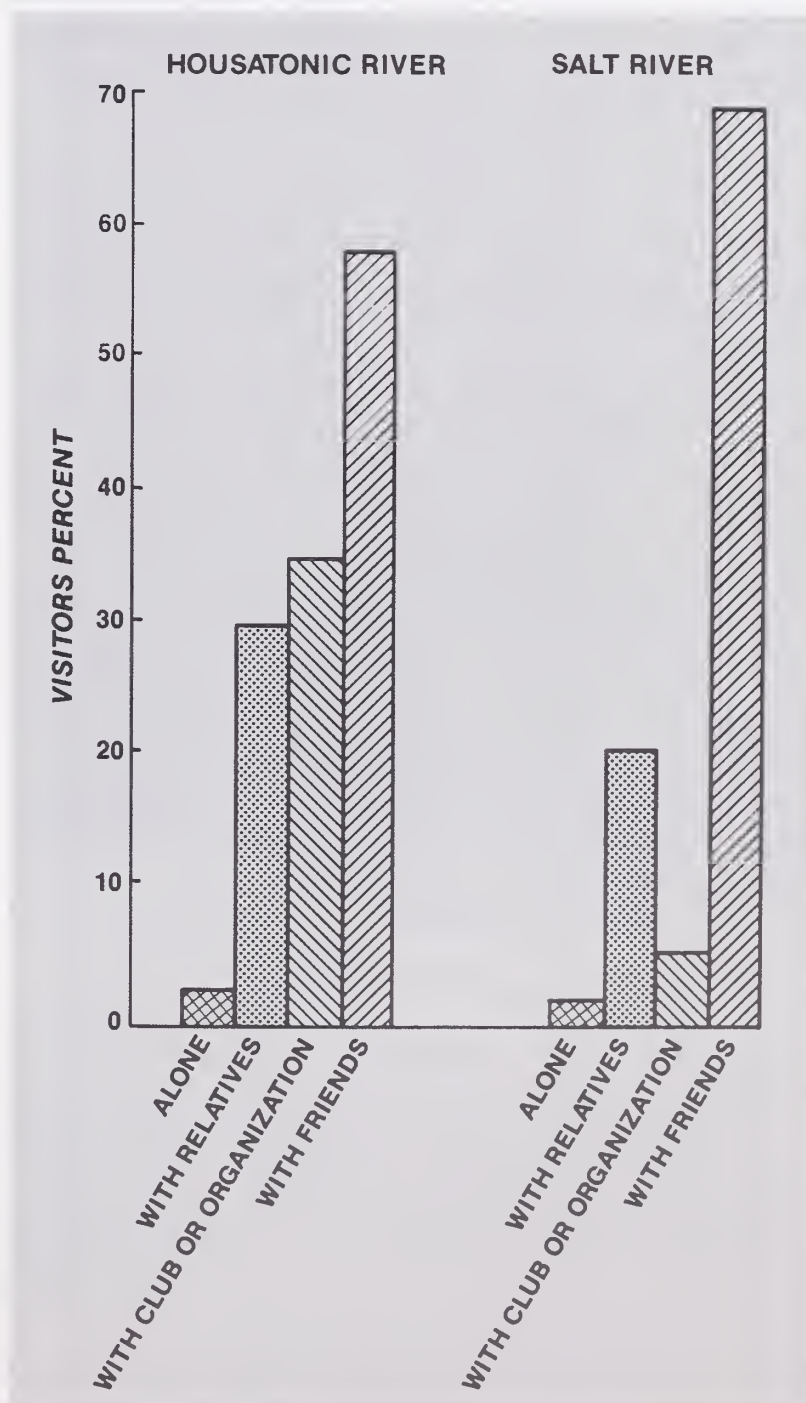


Figure 6—Group composition on the Housatonic River in Connecticut and the Salt River in Arizona, 1979.

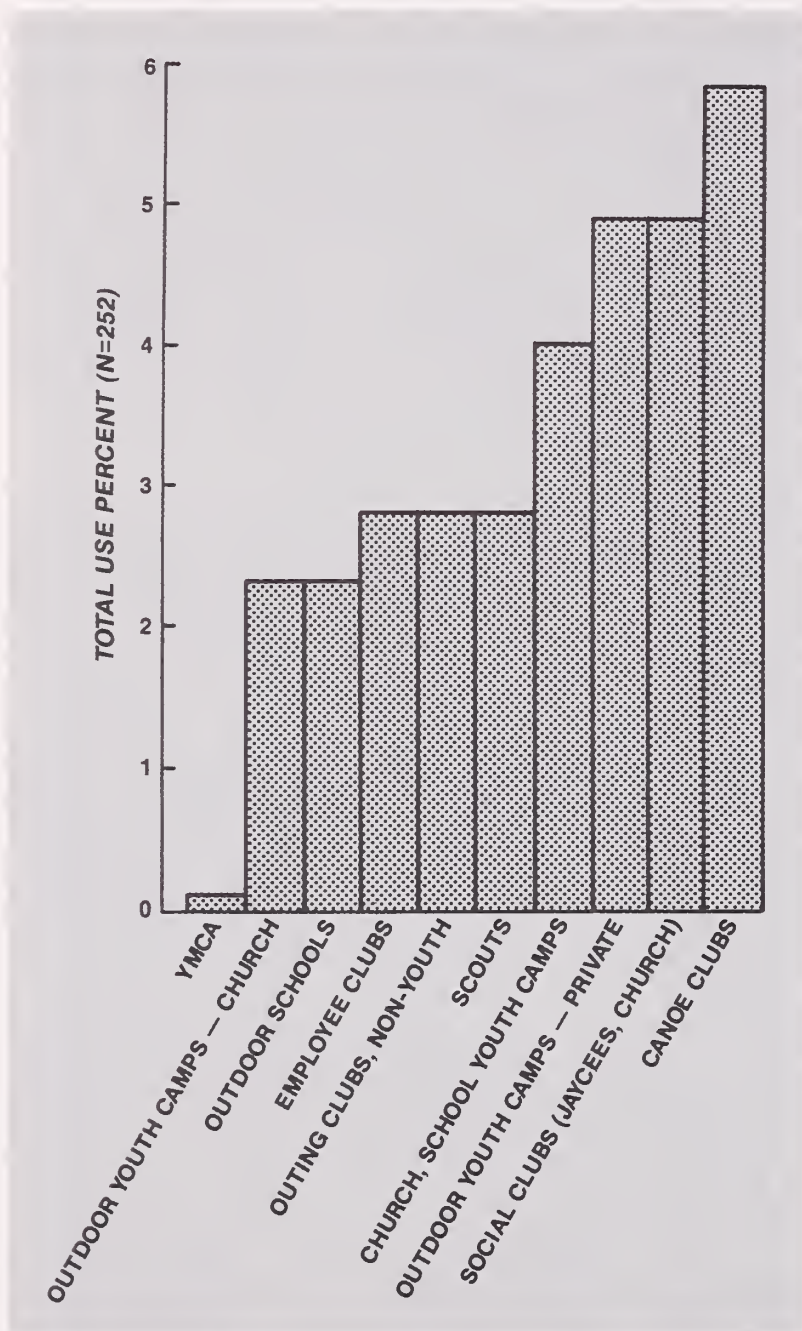


Figure 7—Clubs and organizations floating the Housatonic River in Connecticut, 1979.

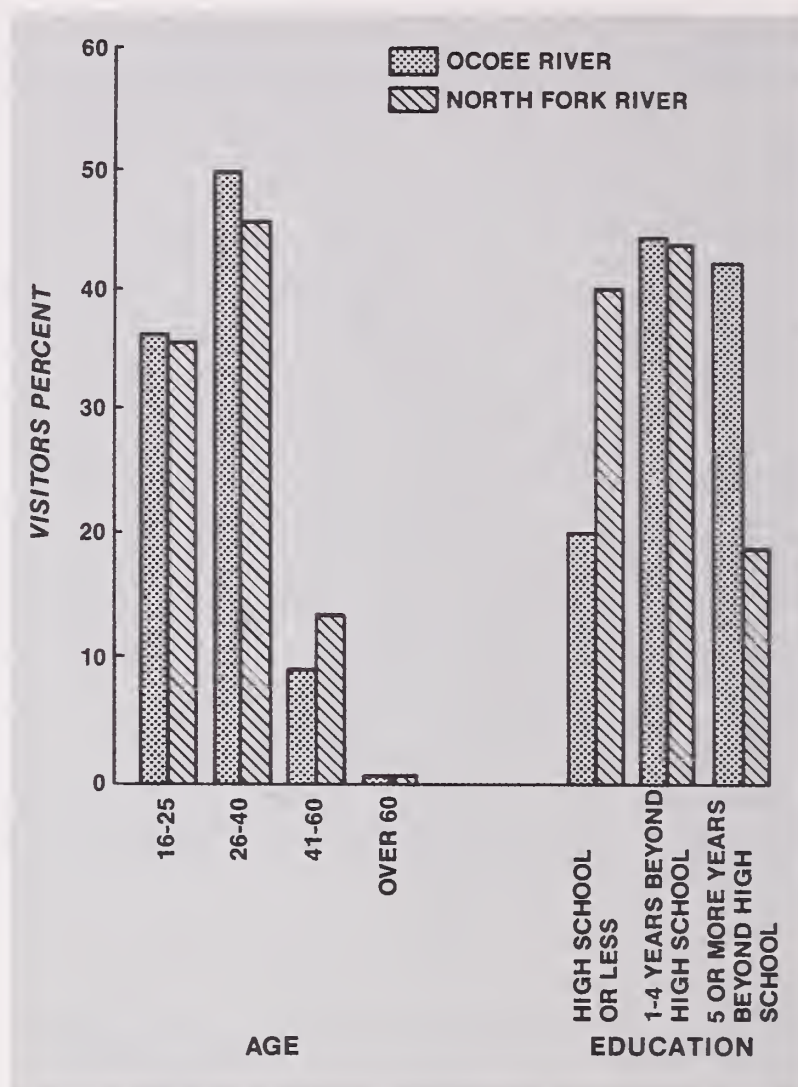


Figure 8—Age and education of floaters on the Ocoee River in Tennessee and North Fork River in Missouri, 1978.

Who Are the Visitors?

Data from the mail questionnaire can also provide valuable information on visitors' backgrounds. These data include age (question 20), occupation (question 19), education (questions 16 and 17), physical impairment status (question 21), and river running experience—both on the study river (question 3) and in general (question 15).

For example, age and education data (1979) on floaters from Tennessee's Ocoee River and Missouri's North Fork River (fig. 8) show that, although visitors on both rivers were young (over 80 percent under 40), they varied substantially in education level. More than 40 percent of Ocoee visitors had at least 5 years of college training—more than twice the proportion of North Fork visitors. Once again, as such fundamental visitor characteristics vary, perhaps information programs should also vary. Visitors on the Ocoee, for example, might search for greater complexity in interpretive materials dealing with safety or environmental education than visitors on the North Fork (fig. 9).

Where Are the Visitors From?

Where are the people coming from? This is an age-old question of recreation research. To a river manager, such information can be invaluable in helping to target strategic locales for public involvement workshops or for offsite interpretive activities. It also gives a feel for the national, regional, or local significance of each river, thus helping identify appropriate management roles at different levels of government.

By drawing on zip code data from the River Recreation Registry (appendix B), it is possible to plot spatially the distribution of home residences of river visitors. Figure 10 offers such a plot for the population of 1978 floaters on central California's Kings River. We can conclude that the river has statewide, but not national, appeal—only 1.6 percent of the visitors resided outside California. Nearly two-thirds of the first-time visitors came from the distant metropolitan area of Los Angeles, but repeat visitors resided more often than not within 50 miles of the resource.

Armed with such information, managers wishing to get information out to repeat users of the river might most cost-effectively confine their efforts to nearby communities in the Central Valley. On the other hand, if increased use of the river were a management goal, a publicity campaign is more distant metropolitan centers might be more effective.



Figure 9—Understanding the backgrounds of visitors assists managers in designing safety and interpretive programs. F-532815

What Experiences Are Visitors Seeking?

As river managers, we are beginning to think more about the need to organize our actions around specific management objectives for each river. One of the first, and perhaps most challenging, tasks is to specify what kinds of experiences we want our clientele to have. We are faced with some perplexing questions. Will the river be managed to encourage encounters among visitors or to minimize them? Should the emphasis be on risk or security? Will opportunities be provided for thrills and action or serenity? Should there be a focus on learning? On skill development? On escape? What exactly should we be providing?

Our mail questionnaire gives some answers to these questions—from the point of view of the floaters. Question 14, which focuses on why people come to the river, lists 36 items that tap numerous themes, such as escape, skill development, exercise, learning, solitude, friendship, socializing, and introspection. The “strongly agree/strongly disagree” format allows us to determine the proportion of visitors oriented toward each specific experience.



Figure 10—Place of residence for first-time and repeat visitors to the Kings River in California, 1978. (Each dot represents 2 percent.)

To illustrate, the following tabulation compares visitor responses to seven items from question 14 on two rivers: Alaska's Delta River and Arizona's Salt River (1979 data):

Experience sought	Delta River visitors (N=103)	Salt River visitors (N=189)
<i>Percent agreeing</i>		
View scenery	97	77
Peace and calm	85	73
Learn new things	80	50
Develop skills	78	34
Escape crowds	76	30
Exercise	64	48
Be alone	28	8

Visitors from both rivers showed strong orientations toward viewing scenery and experiencing tranquility, but that is where the similarities ended. Delta River floaters were clearly more interested in learning, skill development, and exercise. Just as important they were much more interested in avoiding crowds and being alone. So while both populations desired tranquility, they defined it in different ways. For the Delta visitor, tranquility seemed to imply low encounter levels, but for the Salt visitor it did not.

Even visitors on the same river can differ markedly in their experience orientation. Consider the profiles of first-time and repeat visitors (those with at least two previous trips) on New Mexico's Rio Grande River (1979 data):

Experience sought	First-time visitors (N=145)	Repeat visitors (N=54)
<i>Percent agreeing</i>		
View scenery	88	94
Peace and calm	62	79
Learn new things	78	73
Develop skills	48	76
Escape crowds	52	82
Exercise	34	65
Be alone	6	22

Both groups were similar in their desire to view scenery and learn in a peaceful environment. Beyond that, strong differences emerged. First-time visitors were much less interested than repeat visitors in developing skills, exercising, avoiding crowds, and being alone. Strikingly, repeat visitors were four times as likely to report an interest in being alone. These data illustrate why each river plan must specify how—and if—the desires of all visitor groups should be accommodated (fig. 11). On the Rio Grande, managing according to the wishes of the majority (dominated by first-timers) could, in fact, create undesirable conditions for the crowd-sensitive minority (dominated by repeat users). In time, it is possible that these veteran users would find the Rio Grande unacceptable and have to search elsewhere for the experiences they desire. If the needs of this minority are not recognized in the management plan, what is now an important part of the Rio Grande's user population will be displaced as more socially oriented visitors become attracted to the resource. A type of opportunity that is now an integral part of the Rio Grande's opportunity spectrum would be lost.

Our data illustrate the dangers of managing for recreation *activities*, rather than managing for recreation *experiences*. Two people can be engaged in the same activity, but have different, even conflicting, goals. On the same river, one canoeist could be searching for opportunities to meet people, while another could be searching for solitude.

It is clear that repeat visitors on the Rio Grande are looking for different experiences than first-time visitors.



Figure 11—Understanding the reasons why people run rivers can help in developing management objectives that specify what visitor groups the river will be managed for and what experience opportunities will be provided.
F-532816

It is also clear that Delta River visitors differ in orientation from Salt River visitors. Yet, all four populations are participating in the same recreation activity, river floating. From an activity perspective, they would be viewed as essentially equivalent and not differing in resource requirements. But from an experience perspective, they would be viewed as distinct recreation populations with separate requirements.

What Management Problems Exist?

Fifty things that might possibly go wrong on a river trip are listed in question 6 of the mail questionnaire. The floaters are given the opportunity to rate the degree to which each was a problem for them. We can transform these ratings into a rank-ordered list of management problems on the river—as seen from the visitor's perspective.

Table 2 shows the list we compiled for the Ocoee River in Tennessee. Responses of first-time and repeat visitors are shown separately. Only problems cited by at least one-quarter of the population are listed.

Table 2—*Distribution of problems perceived by first-time and repeat visitors to the Ocoee River in Tennessee, 1979*

First-time visitors (N=152)		Repeat visitors (N=68)	
	Percent		Percent
Inadequate toilet facilities at put-in and take-out points	65	Litter on banks	77
Too few drinking water sources	46	Unskilled people using river	68
Litter on banks	45	Inadequate toilet facilities at put-in and take-out points	68
Too few toilet facilities at put-in and take-out points	38	Too many people on river	63
Insufficient information about things to do and see in area	36	Too few garbage cans	60
Road within sight of river	35	Water pollution	59
Too many people on river	27	Too few drinking water sources	59
Inadequate information (signs, displays) at put-in points	27	Muddy water	51
		Litter in river	49
		Insufficient information about things to do and see on river	37
		Inconsiderate people	34
		Roads within sight of river	34
		Erosion of streambanks	31
		Vandalism	30
		Inadequate information (signs, displays) at put-in points	30

Interestingly, we learned that repeat visitors were more sensitive to problems than first-time visitors. The differences were sharpest for items relating to social conditions. Almost two-thirds of repeat visitors felt there were too many people on the river—only about one-quarter of the first-timers felt that way. Repeat floaters felt that the second most important problem was unskilled people using the river—a problem not even included in the list by first-timers. In addition, reports of environmental impacts (e.g., litter, erosion, vandalism) were substantially more frequent for repeat visitors. Such findings, which are not unusual, substantiate what some researchers call the “floating baseline” effect (Schreyer and others 1976): first-time visitors tend to accept what they see as normal, while repeat visitors tend to evaluate what they see in terms of how it differs from the past. Once again, we see the need to understand how different user groups have different management needs. A sound river management plan must identify such distinct populations and specify how and if the needs of each will be met. Clearly, the call for management action from each will be different.

Perhaps the greatest value of the 50 items in question 6 is realized when the questionnaire is administered repeatedly over several years (fig. 12). The standardized format makes it easy to monitor shifts in problems over time, giving us a highly useful, yet simple, evaluative tool. Once management action is taken to reduce a set of identified problems, the situation can be monitored over time to see whether the desired changes are indeed taking place.

What Use Conflicts Exist?

Because rivers are so narrow, they seem particularly vulnerable to use conflicts caused by the concentration of groups with divergent goals. Through question 8, the mail questionnaire allows us to assess whether visitors feel conflicts exist, and if so, between whom and why. Question 9 helps us understand whether or not these conflicts are judged severe enough to warrant managerial attention.

Data from a 1979 sample of nonmotorized floaters on Oregon’s Deschutes River illustrate how such information can help determine what forms of



Figure 12—Studying floater perceptions over several years allows managers to assess change in the intensity of management problems over time. It also allows evaluation of the response of visitors to actions taken to alleviate the problems. F-532817

management action would be appropriate to reduce conflict. On that river, 43 percent of the visitors reported some form of conflict, and three-fourths of those reporting conflict felt that additional management controls were necessary. The specific conflicts reported were:

Type of conflict	Visitor response (N=235)
	<i>Percent</i>
Motorized versus nonmotorized use	27
Private landowners versus floaters	10
Anglers versus floaters	9
Outfitted versus nonoutfitted floaters	4
Experienced (skilled) versus inexperienced (unskilled) floaters	2
Large groups versus small groups	1

While a good deal of attention was directed to private landowners and anglers, most of the focus was on conflict between motorized and nonmotorized users. The open-ended format of question 8 allows us to

learn exactly why our visitors felt motorized use was causing conflict:

Why motorized use causes conflict	Visitor response (N=63)
	<i>Percent</i>
Noise	41
Destruction of wilderness feeling	21
Mobility (domination of the resource)	16
Right-of-way not given to rafters	13
Excessive speed	8
Trespass on private lands	6
Damage to spawning beds	5
Dangerous wake	5
Sediment, pollution of water	5
Bank erosion	3
Smell of gasoline	3
Run over anglers' lines	3
Congestion at access points	2



Figure 13—*Understanding how visitors feel about crowding helps managers decide if detailed study is needed on the carrying capacity issue. F-532818*

The nonmotorized floaters were principally objecting to motorized use because of its noise, its inappropriateness for the wild setting, and its ease of mobility. From a management perspective, it is difficult to deal with these concerns with any strategy short of eliminating motorized use entirely or perhaps employing spatial or temporal zoning. Yet our questionnaire data from other rivers reveals that such drastic action is not always necessary. For example, visitors on Florida's Suwannee River were most concerned about speeding and the resultant threat to safety. This grievance was recorded by 70 percent of those who cited motorized use as a conflict. Rarely mentioned was noise (3 percent) or excessive mobility (1 percent). Destruction of the wilderness feeling was not mentioned at all. So while a substantial number of nonmotorized floaters on both the Deschutes and Suwannee agreed that motorized use causes conflict, they disagreed sharply on why. Consequently, management strategy should differ. While the Deschutes data imply the necessity of segregating use, the Suwannee data imply that conflict (from the nonfloater's perspective) can be resolved by emphasizing speed control and visitor safety. In fact, the key to conflict resolution on the Suwannee may lie in developing effective information programs alone.

Through such study of conflict perception, we can better evaluate whether subtle, indirect forms of control (such as information) can be substituted for more regulatory forms of control (such as zoning).

Do the Visitors Feel Crowded?

Accompanying the rapid growth in river recreation have been concerns that there are limits to the amount of use a river can accommodate at one time. Crowding, overuse, psychological carrying capacity, rationing, and use allocations are now everyday issues in river planning and management—issues rarely of concern a decade or two ago.

Defining the use capacity of a river is an elusive task. It is determined as much by management objectives as by visitor opinions. Moreover, defining visitor opinions is no easy matter; feelings about crowding depend not only upon numbers of people encountered, but also on where they are encountered, when, and the nature of the encounter (Stankey 1973). Also, there are weaknesses in turning only to present river users to gather information about crowding. As resources become more popular, crowd-sensitive visitors may be displaced by those favoring more social experiences.

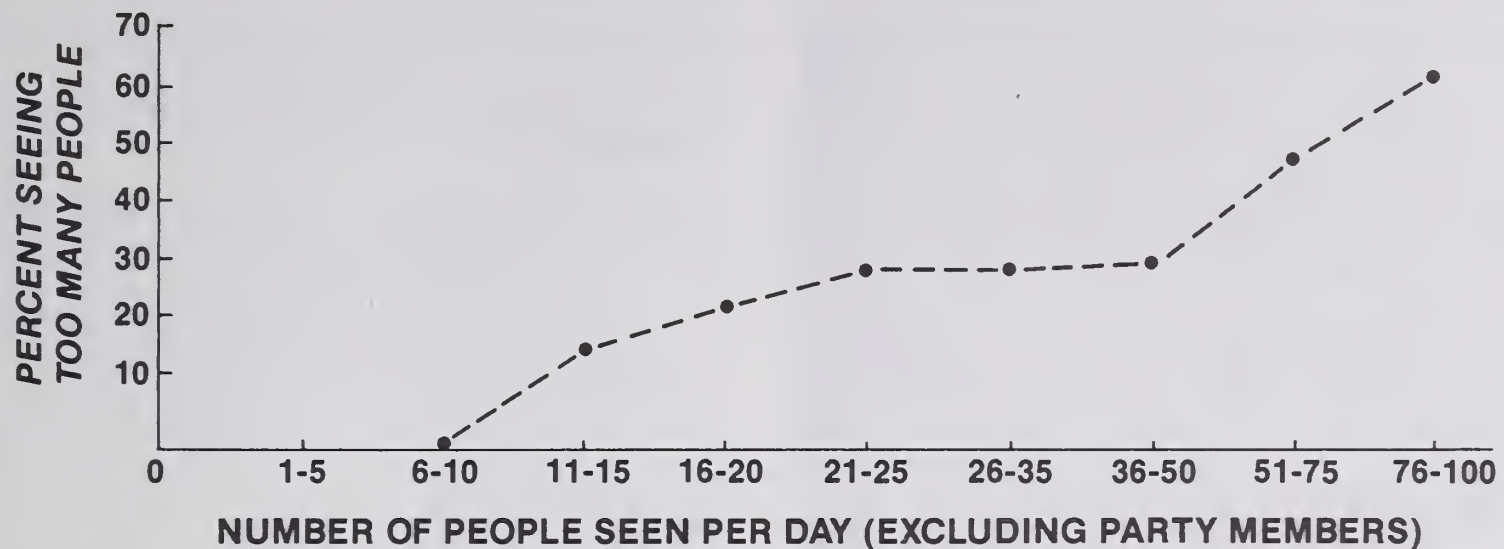


Figure 14—Relation between reported encounter levels and feelings about crowding on the Upper Colorado River in Colorado, 1979.

Opinions of people who find the use levels intolerably high would not surface in an onsite survey.

The purpose of the mail questionnaire is not to address all of the complex issues of carrying capacity, but simply to provide measures of how crowded present users on the river feel (questions 5 and 7). The measures serve only as simple indicators—something to cue management attention when the number of visitors feeling crowded becomes unacceptably high. They provide a basis for deciding if managers, researchers, or both need to study the carrying capacity issue in detail (fig. 13).

On the uppermost floatable stretch of the Colorado River, our crowding measure (question 5) informed us that, in 1979, one-fourth of the visitors felt they saw too many people while floating the river. As we studied these responses, we found that opinions varied widely across different user groups. For example, nonoutfitted visitors were twice as likely to feel crowded as outfitted visitors (40 percent versus 20 percent, respectively); and while only 21 percent of first-time visitors felt crowded, 48 percent of the repeat visitors felt crowded.

So are use levels excessive on the Upper Colorado? The answer depends upon management objectives. If the focus is on providing a primitive experience and giving priority to repeat, nonoutfitted visitors, the answer is probably yes. If the focus is on providing social experiences for large numbers of people, the answer may be no.

If a decision is made to limit use, knowing the relation between use levels and perception of crowding becomes important. Through question 4 of the mail

questionnaire, it is possible to get an impression of the number of people the respondents felt they saw during specific phases of the river trip—during put-in and take-out, while traveling, and when camping. Exploring the relationship between these reported numbers and feelings about crowding reveals encounter levels that are particularly detrimental (fig. 14). For example, the perception of crowding was nonexistent when fewer than six people were reported seen per day while traveling on the river, but it increased sharply as the number of reported encounters increased from 6 to 20. As levels increased from 20 to 50, crowding perception did not increase substantially; but it escalated dramatically when over 50 visitors were encountered. These data allow us to evaluate what levels of encounter are acceptable given the crowding-related criteria set forth in the management plans. However, the data cannot dictate what the optimum level of use should be.

What Kinds of Environmental Impacts Are Seen?

Another variable to consider in establishing river management objectives is the ability of the resource to absorb impacts of recreation use. Question 10 of the mail questionnaire provides an indicator of this by asking floaters to list specific impacts they saw. The value of the question lies in its open-ended format; responses can reflect specific environmental damage peculiar to each study river. Question 11, in turn, helps us determine whether the floaters feel that damage is serious enough to warrant increased management controls.

On Oregon's Deschutes River, we learned that 40



Figure 15—Before implementing a management practice, it is important to assess how it is likely to be received by the visitors. F-532819

percent of the floaters thought environmental damage was arising from recreational use and that every person reporting an impact felt increased managerial control was necessary. Many forms of environmental damage were reported:

Environmental damage	Visitor response (N=235)
	Percent
Human waste	6
Water pollution	6
Soil erosion, compaction	5
Excessive firewood cutting	4
Litter	4
Vegetation destruction	4
Deterioration of facilities	2
Destruction of fish habitat	2
Destruction of wildlife	2
Vandalism	1
Misuse of campfires	1
Overdevelopment	1

Human waste and water pollution were the most frequently cited impacts. However, several other concerns emerged that would not have been revealed by the standardized checklist of potential management problems in question 6—such as excessive firewood cutting, deterioration of facilities, destruction of fish habitat, disruption of wildlife, and misuse of fires.

The value of question 10 is that it provides a benchmark measure of perceived resource quality. The question can be readministered over time to determine how well the physical environment is accommodating the pressures of sustained or even increased use. Significant shifts in response might indicate that the carrying capacity of the river under a given management objective was being exceeded.

What Managerial Practices Are Supported?

Managers can employ a variety of techniques to solve use problems and enhance recreation quality. Twenty-six of these techniques are listed in question 12 of the questionnaire. If it is important to assess the relative acceptability of various management alternatives, floaters can be asked to rate their level of support or opposition to each, given the conditions they saw on the river.

If support for an intended action is weak, alternative remedies showing great public acceptance should be considered. If alternatives are not feasible, the responses indicate the degree to which the action must be accompanied by information and education programs (fig. 15).

For example, on the St. Croix River, which forms the border between Minnesota and Wisconsin, litter was identified as a problem (question 6) by 61 percent of the floaters during the 1978 season. One possible solution shown in question 12 was to prohibit use of disposable containers (e.g., bottles, cans). The floaters expressed their opinions about the issue as follows:

Possible solution	Strongly oppose	Oppose	Neutral	Support	Strongly support
	<i>Percent</i>				
Prohibit the use of cans and other disposable containers	13	27	17	22	21

Opinion was almost evenly divided, so implementing the strategy would surely be met with substantial public resistance. If managers felt the action was necessary nonetheless, groups showing particular opposition could be described using such variables as age, education, method of travel, access points used, and style of outfitting. They could then be targeted for an informational campaign designed to garner their support.

It is not uncommon for various user groups to hold differing views on management practices. Data from California's Kings River illustrate this point. Our analysis of response to question 12 revealed significant ($p < 0.01$) disagreement between outfitted and nonoutfitted users on the appropriateness of 11 management practices (table 3).

Table 3—Opinions of outfitted and nonoutfitted visitors about management practices on the Kings River in California, 1978

Policy	Visitors	
	Outfitted (N=125)	Nonoutfitted (N=88)
	<i>Percent opposed</i>	
Visitor services		
Provide firewood at campsites and picnic areas	18.4	38.3
Use restrictions		
Restrict the number of people using the river at any one time	21.8	38.7
Limit the number of people per group allowed on the river	22.4	54.3
Achieve better spacing among groups by assigning the time of day when each group begins its trip	30.9	64.9
Have each group be assigned where they camp	40.2	71.9
Allow camping only at designated locations	20.2	38.7
Protection and enforcement		
Require every group to have approved first-aid equipment	3.2	16.0
Be more aggressive in the enforcement of safety rules and regulations	8.9	18.5
Provide more patrols to assist river users and enforce regulations	16.0	37.0
Facilities		
Develop short hiking trails at points on river	13.7	20.7
Provide campsites for river users at put-in and take-out points	15.3	25.9

Nonoutfitted visitors were consistently more opposed to these management actions. Differences between groups heightened over those actions that called for direct regulation of behavior. We might expect, then, that implementing these actions would be poorly received by nonoutfitted users, who comprise 40 percent of the use. Without a program of public review and education, implementation of any of these strategies would surely result in alienation of this important user group.

How Satisfied Are the Visitors?

To many, the ultimate goal of river recreation management is to optimize visitor satisfaction. Question 13 of the mail questionnaire contains 16 items that measure satisfaction either in general ("I thoroughly enjoyed the trip") or in particular ("I was pleased with the scenery"). The question also permits an assessment of how visitors feel about management quality ("I was pleased by the job being done by managers of the river").

The "strongly agree/strongly disagree" response scale permits us to distinguish among visitors with different levels of satisfaction. For example, the following tabulation shows how 1978 visitors to Missouri's Big Piney River felt about management quality:

Response to the item: "I was pleased by the job being done by managers of the river."	
	Visitors (N=207)
	Percent
Strongly disagree	3
Disagree	7
Neither agree nor disagree	33
Agree	42
Strongly agree	15

Fifty-seven percent of the visitors felt that managers were doing a good job, while 10 percent disagreed and 33 percent had no opinion.

Tabulations like this prompt the inevitable question: Why are some visitors less satisfied than others? Using predictive techniques such as multiple regression, we can identify variables that tend to be linked with dissatisfaction. On the Big Piney, for example, we used regression analysis to look for association between problems experienced by the visitors (question 6) and their feelings about management quality (question 13, item 3). Four problem areas emerged as significant predictors of the quality response:

Problem	Standardized beta coefficient
Inadequate information services (signs, displays) at put-in point	0.19
Navigation problems due to low water levels	.19
Inadequate toilet facilities at put-in and take-out points	.12
Litter on banks	.11

Of the 50 problems examined, these four apparently were most influential in shaping visitor impressions of management quality. The beta coefficients show the relative importance of each problem. The weights can be compared linearly—that is, a variable weighted by 0.20 has twice the importance of one weighted by 0.10. Thus, inadequate information was about twice as important as litter in lowering visitor opinion of management quality. The data indicate that expanded interpretive services are needed on the Big Piney—both onsite (signs and displays at put-ins) and offsite (broadcasting information on expected navigability).

A planner or manager could make similar predictive analyses for any of the satisfaction measures in question 13. The value of this type of analysis is the ability to isolate, from the host of identified management problems, those that most forcefully affect the visitor's experience.

What Other Concerns Do the Visitors Have?

Two blank pages are provided at the end of the questionnaire for respondents to make comments about their river experience and suggestions about managing the river. Experience has shown that, on the average, about 40 percent of the respondents can be expected to volunteer such comments and suggestions. In addition, numerous respondents attach letters that detail their feelings on issues raised in the questionnaire. Managers have found such input to be invaluable for gaining insight into issues that are both particularly volatile and specific to their own resource.

We have attempted to demonstrate how the National River Recreation Study data collection methods can be used to describe river recreationists and their preferences. While analyzing current problems is important, the ultimate value of these tools may lie in evaluating changes over time.

Keeping tabs on visitor opinion allows managers to monitor the effects of their programs. Baseline data for the Salt River, for example, indicate that 89 percent of the visitors feel litter is a problem. Management action to alleviate the problem could be followed by a reapplication of the questionnaire to see if the action was indeed effective in reducing public concern.

In a broader sense, the questionnaires allow resource planners to monitor nationwide changes in river use from year to year or even from decade to decade. Demand for recreation is volatile—it can shift dramatically with changing energy costs, recreational tastes, population demographics, and technological innovation. Through systematic application of the questionnaires over time, resource planners will be in a better position to detect and respond to changes in visitor expectations, in perceived problems, and in styles and patterns of use.

River recreationists have shown widespread support for this kind of study. In over 4 years of experience, we have found virtually no one refusing to complete the Onsite Registry. In spite of the 20 minutes required to complete the questionnaire, the response rate has been a gratifying 73 percent. Judging by the unsolicited comments offered by the majority of respondents (on the last page of the mail questionnaire or in its margins, in accompanying letters returned with the questionnaire, and through comments made to the interviewers at river access points), most appreciated being asked their opinions and viewed the study as a vehicle for meaningful participation in the decisionmaking process (fig. 16).

Our purpose here has been to demonstrate how data from the National River Recreation Study instruments can be useful in management decisionmaking. While the data are indeed important in their own right, the study has another important, but less tangible, value. The process of administering the instruments and analyzing the data encourages rich, and sometimes intense, dialogue between researchers and resource administrators. This interaction has done much to increase the capabilities of all involved—adding to the overall quality of problem solving in river recreation management. Researchers have discovered the challenges and complexities of managing resources for human benefits and have received invaluable insights into the forms of information needed for maximizing visitor satisfaction and reducing environmental impacts. Managers, on the other hand, have learned to appreciate the value of social science data in formulating and implementing management policy. As such learning experiences continue, increasingly effective approaches to river management will surely emerge. The recreating public and the resources upon which they depend will be the ultimate beneficiaries.

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Figure 16—*The recreating public is the ultimate beneficiary of river recreation research. F-532820*

Appendix A— Mail Questionnaire (National River Recreation Study)

Questionnaire Number: _____

This survey is voluntary. While you are not required to respond, your cooperation is needed to make the survey results comprehensive, accurate and timely. Thank you!

THIS SURVEY PERTAINS ONLY TO YOUR RIVER
TRIP IN 1980 DURING WHICH YOU WERE INTERVIEWED

1. On your river trip, what type of group were you with? (Check all that apply)

- ☐ By myself
- ☐ Family
- ☐ Friends or acquaintances
- ☐ With people I didn't know prior to the trip
- ☐ Club or organization - - please give type _____

2. How long before your river trip did you actually decide to go? (Check one)

- ☐ Less than 24 hours
- ☐ More than 24 hours, but less than one week
- ☐ One week to one month
- ☐ One month to six months
- ☐ Six months to twelve months
- ☐ More than one year

3. How many times have you been on this particular stretch of the river?
(Check one)

<u>once</u>	<u>twice</u>	<u>three</u>	<u>four</u>	<u>five</u>	<u>six to ten</u>	<u>more than</u>
only		times	times	times	times	ten times*
(this trip)						

*If more than ten times,
about how many? _____

4. Estimate the number of people you saw at each of the following places:
(Do not count members in your own group.)

	Estimated number of people seen
Where you first put into the river	_____
While travelling on the river	_____
Where you last took out of the river	_____
While camping on the river	_____

5. How did the number of people you saw at EACH of the following places compare with what you had expected to see?

	<i>Far fewer than expected</i>	<i>Fewer than expected</i>	<i>About what I expected</i>	<i>More than I expected</i>	<i>Far more than expected</i>	<i>Had no expectations</i>
Where you first put into the river	[]	[]	[]	[]	[]	[]
While travelling on the river	[]	[]	[]	[]	[]	[]
Where you last took out of the river	[]	[]	[]	[]	[]	[]
While you were camping on the river	[]	[]	[]	[]	[]	[]

6. Information about problems you may have experienced during your river trip would be helpful to river managers. To what extent did you find each of the following to be a problem during your trip? (Circle the number that best describes how serious you found EACH to be.)

	<i>Not a problem</i>	<i>Slight problem</i>	<i>Moderate problem</i>	<i>Serious problem</i>	<i>Very serious problem</i>
Too few garbage cans	1	2	3	4	5
Erosion of stream banks	1	2	3	4	5
Litter in river	1	2	3	4	5

Litter on banks	1	2	3	4	5
Obstructions in river (logs, limbs, fences)	1	2	3	4	5
Vandalism	1	2	3	4	5

Too few drinking water sources	1	2	3	4	5
Bad weather	1	2	3	4	5
Too many homes or cottages along river	1	2	3	4	5

Muddy water	1	2	3	4	5
Water pollution	1	2	3	4	5
Off-road vehicles in river area	1	2	3	4	5

People shouting and yelling	1	2	3	4	5
People being inconsiderate	1	2	3	4	5
People drinking alcoholic beverages	1	2	3	4	5

6. (Continued)

	Not a problem	Slight problem	Moderate problem	Serious problem	Very serious problem
Too many people on the river	1	2	3	4	5
Insect bites	1	2	3	4	5
Frightening rapids	1	2	3	4	5

Motorized boats on the river	1	2	3	4	5
Airplanes flying overhead	1	2	3	4	5
Utility poles and lines	1	2	3	4	5

Railroads along banks	1	2	3	4	5
Too few rules and regulations	1	2	3	4	5
Too many rules and regulations	1	2	3	4	5

Trees and branches overhanging the river	1	2	3	4	5
People playing loud radios	1	2	3	4	5
Insufficient information about things to do and see in the area	1	2	3	4	5

Too many commercial establishments	1	2	3	4	5
Inadequate toilet facilities at put-in and take-out points	1	2	3	4	5
Too few toilet facilities along river between put-in and take-out points	1	2	3	4	5

Not enough law enforcement	1	2	3	4	5
Too much law enforcement	1	2	3	4	5
People fishing	1	2	3	4	5

Roads within sight of a river	1	2	3	4	5
Too many signs along the river	1	2	3	4	5
People being rowdy	1	2	3	4	5

Inadequate information services (signs, displays) at put-in points	1	2	3	4	5
Too many bridges across river	1	2	3	4	5
Too much nudity	1	2	3	4	5

Livestock	1	2	3	4	5
Someone in your group receiving an injury	1	2	3	4	5
Human body waste	1	2	3	4	5

6. (Continued)

	<i>Not a problem</i>	<i>Slight problem</i>	<i>Moderate problem</i>	<i>Serious problem</i>	<i>Very serious problem</i>
Damage to or loss of personal property	1	2	3	4	5
Navigation problems due to low water levels	1	2	3	4	5
Navigation problems due to high water levels	1	2	3	4	5

Conflicts or tensions within your group	1	2	3	4	5
Inadequate brochures showing map of river, hazards, access points, etc.	1	2	3	4	5
Nuisance wildlife	1	2	3	4	5

Unskilled people using the river	1	2	3	4	5
Current mining activities	1	2	3	4	5
Too many hikers	1	2	3	4	5

Too many horseback riders	1	2	3	4	5
Poor quality campsites	1	2	3	4	5
Campsites occupied by others	1	2	3	4	5

Campsite locations not clearly identified	1	2	3	4	5
Other things (please specify)					

7. How do you feel about the number of people you saw at EACH of the following places? (Check the box that best describes your feelings.)

	<i>Would like to have seen a lot more people</i>	<i>Would like to have seen a few more people</i>	<i>Neither too many nor too few people</i>	<i>A few too many people</i>	<i>Far too many people</i>
Where you first put into the river	[]	[]	[]	[]	[]
While travelling on the river	[]	[]	[]	[]	[]
Where you last took out of the river	[]	[]	[]	[]	[]
While you were camping on the river	[]	[]	[]	[]	[]

8. For the river stretch you were on, do you feel there are conflicts between different groups of river recreationists? (For example, between canoeists and swimmers, kayakers and fishermen, landowners and canoeists, horseback riders and canoeists, etc.)

☐ NO

☐ YES If "Yes", between which groups are the conflicts occurring?

What conflicts exist between these groups? _____

9. Do you feel that more controls are needed to keep these conflicts from occurring?

☐ NO

☐ YES

10. For the river stretch you were on, do you feel the river environment is being damaged by recreational use?

☐ NO

☐ YES If "Yes", what kinds of environmental damages are occurring?

11. Do you feel more controls are needed to prevent the river environment from being damaged by recreational use?

☐ NO

☐ YES

12. Given the conditions on the river when you were there, how would you feel about each of the following management actions? (Circle the number that shows how much you support or oppose EACH action).

	<i>Strongly oppose</i>	<i>Oppose</i>	<i>Neither support nor oppose</i>	<i>Support</i>	<i>Strongly support</i>
Provide more points of public access to the river	1	2	3	4	5
Require people to carry out their own trash	1	2	3	4	5
Provide more campsites along the river between put-in and take-out points	1	2	3	4	5
-----	-----	-----	-----	-----	-----
Prohibit motorized watercraft on the river	1	2	3	4	5
Post signs warning and advising of hazards	1	2	3	4	5
Provide more parking at access points	1	2	3	4	5
-----	-----	-----	-----	-----	-----
Provide firewood at campsites and picnic areas	1	2	3	4	5
Allow wood fires only at designated spots	1	2	3	4	5
Prohibit wood fires altogether	1	2	3	4	5
-----	-----	-----	-----	-----	-----
Provide more patrols to assist river users and enforce regulations	1	2	3	4	5
Develop short hiking trails at points along the river	1	2	3	4	5
Prohibit off-road vehicles in the vicinity of the river, except on roads and highways	1	2	3	4	5
-----	-----	-----	-----	-----	-----
Improve existing access roads to put-in and take-out points	1	2	3	4	5
Be more aggressive in the enforcement of safety rules and regulations	1	2	3	4	5
Allow camping only at designated locations	1	2	3	4	5
-----	-----	-----	-----	-----	-----
Require every group to have approved first-aid equipment	1	2	3	4	5
Prohibit camping along the river	1	2	3	4	5
Restrict the numbers of people using the river at any one time	1	2	3	4	5
-----	-----	-----	-----	-----	-----

12. (Continued)

	<i>Strongly oppose</i>	<i>Oppose</i>	<i>Neither support nor oppose</i>	<i>Support</i>	<i>Strongly support</i>
Provide campsites for river users at put-in and take-out points	1	2	3	4	5
Prohibit the use of cans, bottles, and other non-burnable disposable containers	1	2	3	4	5
Limit the number of people per group allowed on the river	1	2	3	4	5

Achieve better spacing among groups by assigning the time of day when each group may begin its trip	1	2	3	4	5
Improve the loading areas at put-in and take-out points	1	2	3	4	5

Provide more information along the river identifying facilities and points of interest	1	2	3	4	5
Provide more distance markers along the river	1	2	3	4	5

13. How well do the following statements describe your feelings about the river trip? (Circle the number that best describes how strongly you agree or disagree with each statement.)

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
I thoroughly enjoyed the trip	1	2	3	4	5
I did not see the types of wildlife I had hoped to see	1	2	3	4	5
I was pleased by the job being done by managers of the river	1	2	3	4	5

The number of people I saw on the river was about right	1	2	3	4	5
The actions of other people on the river bothered me	1	2	3	4	5
The river went through some very wild country	1	2	3	4	5

13. (Continued)

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
I cannot imagine a better river trip	1	2	3	4	5
I wish there had been more rapids	1	2	3	4	5
The river trip was well worth the money I spent to take it	1	2	3	4	5
-----	-----	-----	-----	-----	-----
I was very pleased with the scenery	1	2	3	4	5
I do not want to run any more rivers like this one	1	2	3	4	5
I was disappointed with some aspects of my trip	1	2	3	4	5
-----	-----	-----	-----	-----	-----
The river went through some true wilderness	1	2	3	4	5
I thought the river and its surroundings were in good condition	1	2	3	4	5
The people I saw on the river did not bother me	1	2	3	4	5
I want to go back and run that part of the river again	1	2	3	4	5
-----	-----	-----	-----	-----	-----

14. Some possible reasons why people take river trips are listed below. Think about why you took your river trip and circle the number that best shows how much you agree or disagree with EACH of the following statements..

I took this river trip because I wanted...

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
To view the scenery	1	2	3	4	5
To be part of a group	1	2	3	4	5
To test and use my equipment	1	2	3	4	5
-----	-----	-----	-----	-----	-----
To be close to nature	1	2	3	4	5
To run rapids	1	2	3	4	5
To talk to new and varied people	1	2	3	4	5
-----	-----	-----	-----	-----	-----
To be my own boss	1	2	3	4	5
To do some hiking	1	2	3	4	5
To develop my skills and abilities	1	2	3	4	5
-----	-----	-----	-----	-----	-----

14. (Continued)

I wanted:	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
To think about my personal values	1	2	3	4	5
To get away from the usual demands of life	1	2	3	4	5
To do some fishing	1	2	3	4	5

To strengthen my feelings of self-worth	1	2	3	4	5
To get away from other people	1	2	3	4	5
To see historical sites	1	2	3	4	5

To experience peace and calm	1	2	3	4	5
To have thrills and excitement	1	2	3	4	5
To do some camping	1	2	3	4	5

To have a change from the daily routine	1	2	3	4	5
To learn more about nature	1	2	3	4	5
To be with people having similar values	1	2	3	4	5

To do something with the family	1	2	3	4	5
To learn more about things there	1	2	3	4	5
To be with friends	1	2	3	4	5

To give my mind a rest	1	2	3	4	5
To visit archeological sites (pictographs, ruins, artifacts)	1	2	3	4	5
To be alone	1	2	3	4	5

To keep physically fit	1	2	3	4	5
To release tensions and anxieties	1	2	3	4	5
To test my abilities	1	2	3	4	5

To be away from crowds of people	1	2	3	4	5
To experience new and different things	1	2	3	4	5
To take chances in dangerous situations	1	2	3	4	5

To be away from the noise back home	1	2	3	4	5
To show others I can do it	1	2	3	4	5
To share what I have learned with others	1	2	3	4	5

15. Have you been on other river trips? (A "river trip" refers to travelling on a river or stream by innertube, canoe, kayak, inflatable raft, motorboat, etc.)

☐ NO If "No", go to Question No. 16.

☐ YES If "Yes", continue with "A" below.

A. On what other rivers (or other stretches of this river) have you taken trips? DO NOT include the stretch of the river on which you were interviewed.

Please list the names of the rivers below, the number of trips on each river, and name the state or foreign countries where they are located. (If more space is needed, use the last page of this questionnaire.)

<u>River Name</u>	<u>Name or Location of River Stretch</u>	<u>Number of Trips</u>	<u>Year(s)</u>	<u>State or Foreign Country</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

16. What is your educational background? (Circle the number of the highest "grade" completed).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	16+
Elementary through High School												Beyond High School				

17. Are you a student?

☐ NO

☐ YES

18. Are you retired?

☐ NO

☐ YES

19. What is your occupation? _____

What sort of work do you do? _____

20. What is your age? _____ years.

21. At the time of your river trip, did you have any physical impairment or handicap?

☐ NO

☐ YES Please describe:

☐ Hard of hearing or deaf

☐ Serious difficulty in seeing or blind

☐ Respiratory disorder

☐ Orthopedic handicap

☐ Arthritis or rheumatism

☐ Heart trouble

☐ Other--please specify: _____

A brief description of our research program is on the
back of this questionnaire.

Any other comments about your river experience or
suggestions about managing the river are welcomed.
Please use the next page to write your comments.

Thank you for your help!

ABOUT RIVER RECREATION RESEARCH IN THE FOREST SERVICE

Scientists at the North Central Forest Experiment Station in St. Paul, Minnesota are embarking on a new program of nationwide research on river recreation management. We are working with other Federal and State agencies to determine how rivers are being used for recreation, by whom, and why.

The next step will be to find out how we might help people to increase their enjoyment. Are people presently satisfied with what they see and experience? Are their expectations being met? What kinds of facilities and programs would they like to see managers provide?

Finally, we want to help managers deal with some of the complex problems that arise when rivers become increasingly used for recreation. Crowds, litter, vandalism, pollution and erosion are unfortunate spinoffs of increased use. We wish to develop ways to decrease resource damage as well as people's impact on each other, while still allowing for full use and enjoyment of these river areas.

Our ultimate goal is to make it possible for recreationists like yourself to get the maximum enjoyment from the nation's rivers without jeopardizing the environment.



Appendix B— Onsite Data Collection Forms

RIVER RECREATION REGISTRY

Name (Please Print): _____

Permanent Mailing Address: _____

City: _____ State: _____ Zip: _____

Zip code of CURRENT residence if different from above. Zip: _____

Primary type of watercraft you are
using on this trip: (check one)

- | | |
|------------------------------------|--|
| <input type="checkbox"/> canoe | <input type="checkbox"/> dory, driftboat |
| <input type="checkbox"/> raft | <input type="checkbox"/> jonboat, flatboat |
| <input type="checkbox"/> kayak | <input type="checkbox"/> jet boat |
| <input type="checkbox"/> innertube | <input type="checkbox"/> motorboat |
| <input type="checkbox"/> rowboat | <input type="checkbox"/> pontoon boat |
| | <input type="checkbox"/> other: _____ |

Before this trip, how many times have
you floated this river stretch?

- | | |
|---------------------------------------|---------------------------------------|
| <input type="checkbox"/> never before | <input type="checkbox"/> three times |
| <input type="checkbox"/> once before | <input type="checkbox"/> four times |
| <input type="checkbox"/> twice before | <input type="checkbox"/> five or more |

Does this craft have a motor?

- ☐ yes ☐ no

Will you or did you camp along the river
during this trip?

- ☐ yes ☐ no

Is floating this river: (check one)

- ☐ The primary purpose of your trip
away from home?
- ☐ One of several important things
you had planned to do on your trip?
- ☐ Something you decided to do after
being in the area?

THANK YOU, AND HAVE A PLEASANT DAY!

GROUP LOG

River: _____

Group #: _____ Time: _____

Date: _____ Location: _____

Point of Contact:

- ☐ Put-in ☐ Stopover ☐ Take-out

Put-in point: _____

Take-out point: _____

Type of group:

- | | |
|----------------------------------|--|
| <input type="checkbox"/> alone | <input type="checkbox"/> organization |
| <input type="checkbox"/> family | <input type="checkbox"/> new to each other |
| <input type="checkbox"/> friends | <input type="checkbox"/> other: _____ |

Number of nights camped:

_____ nights at put-in and take-outs
_____ nights at places in-between

Number of people in the group,
including leader: _____ people.

Number not contacted:

_____ Missed _____ Refused _____ Children

Number of watercraft by type:

Type of craft	Commercial	Private
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_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

Outfitter: _____

